10633517

FILE 'CAPLUS' ENTERED AT 17:06:53 ON 30 MAR 2004
L1 1471 TITRAT? (5A) (CONTINUOUS? OR IN-LINE OR ON-LINE OR IN-FLOW OR FLOW)
L2 3 L1 AND ((REVERS? OR INVERS?)(S) (RATIO OR PROPORT? OR VOLUME OF "FLOW RATE"))
L3 6 L1 AND (REVERS? OR INVERS?) AND (RATIO OR PROPORT? OR VOLUME OF "FLOW RATE")
L4 15 SEA ABB=ON PLU=ON TRIANGLE (4A) FLOW (4A) TITRAT?

=> d l3 ibib abs 2, 4, 7, 8, 12, 13, 16, 17, 20, 32, 37, 46, 53, 73-75, 104, 105, 109, 114, 116, 120, 149

L3 ANSWER 2 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:70350 CAPLUS
TITLE: Development of a micro-flow titration method and application to acid-base titration
AUTHOR(S): Konishi, Hironobu; Takayanaci, Toshio; Oshima, Mitsuko; Motomizu, Shoji
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Okayama University, 3-1-1 Tsushimanaka, Okayama-shi, Okayama, 700-8530, Japan
SOURCE: Bunseki Kagaku (2004), 53(1), 1-6
CODEN: BNSKAK; ISSN: 0525-1931
PUBLISHER: Nippon Bunseki Kagakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB A flow titration anal. method based on flow ratiometry was developed in this study from the viewpoint of simplicity, rapidity, automation, and cost efficiency. Sample and titrant solns. react while the solns. are continuously propelled by individual pumps at different flow rates. The flow rates are accurately controlled and changed independently, and the color change of an indicator gives an equivalent point. The concentration of analyte was determined by using the ratio of the flow rate and the equivalent point. The fundamental properties of the flow titration method were evaluated through acid-base titration, and compared with the conventional manual titration When Phenolphthalein or Cresol Red was used as an indicator added in either the sample solution or the titrant solution, linear calibration graphs were obtained for all titrns. examined, including strong and weak acids. The proposed method was applied to the titration of carbonate salt using Bromocresol Green and Phenolphthalein. Two isolated end-points were obtained in one sequential measurement corresponding to carbonate and bicarbonate ions. The proposed titration method was applied to the anal. of com. vinegar samples. The results agreed well with the ones obtained by the conventional titration method; the relative standard deviations for the end point were within 0.3%. The volume of wastewater per one measurement can be reduced down to about 100 pl by the proposed method, while a practical method requires about 50 mL.

L3 ANSWER 4 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:926727 CAPLUS
DOCUMENT NUMBER: 140:82965
TITLE: Determination of dissociation constants of weak acids by feedback-based flow ratiometry
AUTHOR(S): Tanaka, Hideji; Aritsuka, Kiriko; Tachibana, Takahiro; Chuman, Hiroshi; Dasgupta, Purnendu K.
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Tokushima University, Sho-machi, Tokushima, 770-8505, Japan
SOURCE: Analytica Chimica Acta (2003), 499(1-2), 199-204
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We applied the principle of feedback-based flow ratiometry, originally developed for continuous titrns., to the determination of acid dissociation consts. (Ka). The titrant (NaOH) flow rate FB was varied in response to a control voltage Vc from a controller, while the total (titrant + titrand) flow rate FT was held constant The titrand was aspirated to the flow system at the flow rate of FT-FB, and mixed with the titrant at the confluence point. Downstream, the pH of the mixed solution was measured with a glass electrode. Initially, Vc (thus FB) was ramped upward linearly. At the instant the detector sensed the half equivalence point, Eq1/2, where the buffer capacity is maximum, the algorithm reversed the ramp direction of Vc downwards. When Eq1/2 was sensed again, the algorithm reversed the ramp direction of Vc again, upwards. By repeating these processes automatically, time utilization efficiency of the procedure was improved by scanning Vc only in the range of interest. When the Vc scan range was thus constrained, the pH values corresponding to either a maximum or min. in Vc, were equal to the pKa of the analyte. The pKa values thus obtained for various n-alkyl carboxylic acids and phosphoric acid agreed well with the literature. High throughput (ca. 26 s per determination) was attainable with reasonable precision (R.S.D.<3%).
REFERENCE COUNT: 20

L3 ANSWER 7 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:345194 CAPLUS
DOCUMENT NUMBER: 136:337374
TITLE: Flow titration analysis
INVENTOR(S): Motomizu, Shoji; Higuchi, Yoshiro
PATENT ASSIGNEE(S): Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002131304 A2		20020509	JP 2000-366241	20001026

PRIORITY APPLN. INFO.: JP 2000-366241 20001026

AB A flow titration anal. is provided to the sites of management anal. in chemical industry, food anal., drug anal., environmental anal., clin. anal. and so on. In this anal., a flow anal. technique is applied to a titration technique to promote a rapid, convenient and labor-saving titration A flow system is constituted with a high performance pump with high flow rate accuracy, a microcapicity mixer, and a detector. The concentration of a titration liquid is determined by obtaining the equivalence point upon detecting a liquidity change generated by changing the flow rate ratio of the pump.

L3 ANSWER 8 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:264268 CAPLUS
DOCUMENT NUMBER: 137:83165
TITLE: Study of the online titration technology for continuous flow titration
AUTHOR(S): Zhu, Jian-yu; Xian, Yue-zhong; Dallner, C.; Niebauer, H.; Muenzel, C.; Bauer, H.
CORPORATE SOURCE: Department of Chemical Engineer, Shanghai Institute of Applied Technology, Shanghai, 200233, Peop. Rep. China
SOURCE: Huadong Shifan Daxue Xuebao, Ziran Kexueban (2001), (4), 76-81
CODEN: HSZKEO; ISSN: 1000-5641
PUBLISHER: Huadong Shifan Daxue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB A new online titration method and device are described. The classic volume dependent determination of the equivalent point is overcome and replaced by the electronically controlled mixing ratio between sample and titrant. This is realized by time controlled switching of a solenoid valve, the main component of the system. It achieves every desired titration mode under real online conditions. The detection is carried out with different systems using spectrophotometric, potentiometric and conductimetric methods. Optimizing fluid systems and mixing devices results in reliable anal. data which show relative standard deviations <1% which is at least similar to classic techniques. This new technique is fast, uses only about one tenth of titrant, it is fully automated and thus very easy to handle and it is a low cost system in all respects as man power, solvent consumption and instrumentation.

L3 ANSWER 12 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:936719 CAPLUS
DOCUMENT NUMBER: 136:209710
TITLE: Simultaneous multiple injection to perform titration and standard addition in monosegmented flow analysis
AUTHOR(S): Assali, Margarete; Raimundo, Ivo M., Jr.; Facchin, Ileana
CORPORATE SOURCE: Instituto de Quimica, UNICAMP, Sao Paulo, CEP 13083-970, Brazil
SOURCE: Journal of Automated Methods & Management in Chemistry (2001), 23(3), 83-89
CODEN: JAMCF2; ISSN: 1463-9246
PUBLISHER: Taylor & Francis Ltd.
DOCUMENT TYPE: Journal

LANGUAGE: English
AB An automated system to perform titration and standard addition in monosegemented flow anal. by employing the simultaneous multiple injection is described. The system was controlled by a PC-AT-386 microcomputer through a home-made parallel interface, employing a diode array spectrophotometer as detector. Software was written in QuickBasic 4.5 to control the system and for data acquisition. A three-way solenoid valve was used in conjunction with a proportional injector to add the titrant solution or the standard solution to the sample, to carry out titration or standard addition, resp. Only one standard solution was used in each procedure and different quantities of titrant or standard were added to the sample by controlling the time interval in which the solenoid valve was switched on. Titration and standard addition curves similar to those of the manual methods were obtained in both cases, since the sample dispersion was very low due to the air bubbles of the monosegment. The titration system was evaluated through the determination of Fe(II) with a KMnO4 standard solution in pharmaceutical prepns. The standard addition process was assessed by determining Cr(VI) in natural waters and domestic wastewater using the diphenylcarbazide method. The results obtained in both methodologies did not differ significantly from the reference methods at a 95% confidence level. REFERENCE COUNT: 56

L3 ANSWER 13 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:935876 CAPLUS
DOCUMENT NUMBER: 136:47674
TITLE: "Continuous on-line titrations by feedback based flow ratiometry"
INVENTOR(S): *Dasgupta, Purnendu K.; Tanaka, Hideji*
PATENT ASSIGNEE(S): Texas Tech University, USA
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001098773	A1	20011227	WO 2001-US1230	20010212
US 2002151080	A1	20021017	US 2001-780434	20010212

PRIORITY APPLN. INFO.: US 2000-212671P P 20000620
AB Continuous online titrns. based on feedback-controlled flow and the principle of compensating errors are carried out in a titration system by maintaining a constant total flow of mixed sample and titrant. The flow of the titrant is varied in response to a controller output voltage, and accordingly, the makeup sample flow also varies but inversely to the titrant flow. A detector monitors the status of the indicator color in the mixed stream. The controller output varies upwardly or downwardly in response to the detector output. The controller initially ramps upwardly to increase titrant flow. When the detector senses a color change, it causes the controller output to reverse and ramp downwardly. This reduces the titrant flow until another color change is detected, which again reverses the controller output. This is repeated to obtain an accurate equivalence flow rate by compensating for the lag time between the occurrence of an equivalence in the mixed stream and its detection. REFERENCE COUNT: 4

L3 ANSWER 16 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:474969 CAPLUS
DOCUMENT NUMBER: 135:200035
TITLE: Automatic flow titrator based on a multicommutated unsegmented flow system for alkalinity monitoring in wastewaters
AUTHOR(S): Almeida, Cristina M. N. V.; Lapa, Rui A. S.; Lima, Jose L. F. C.
CORPORATE SOURCE: CEQUP/Departamento de Quimica-Fisica, Faculdade de Farmacia da Universidade do Porto, Oporto, 4050-047, Port.
SOURCE: Analytica Chimica Acta (2001), 438(1-2), 291-298
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A full automatic flow system based on potentiometric titration for alkalinity monitoring in wastewater treating plants is presented. Titration to an end-point of pH 5.75 partial alkalinity (PA) and then to pH 4.3 intermediate alkalinity (IA) allows to distinguish the relative buffering contributions of both bicarbonate and volatile acids in anaerobic digesters and, thus, the attainment of a IA:PA ratio which is a sensitive parameter of digestion monitoring that increases rapidly with the process upset. The titration approach is based on a time-based sequential introduction of increasing titrant and decreasing titrant vols. into a mixing chamber. The theor. model for the titration process already presented and discussed was used to determine the titrant concentration without prior calibration. The interface between the anal. system and the anaerobic digester was also developed, allowing completely automated online monitoring of alkalinity The results obtained were reproducible (relative standard deviation <2.4 and 5.1% for repeatability and reproducibility, resp.) and in good agreement with those given by the comparative method. REFERENCE COUNT: 14

L3 ANSWER 17 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:329461 CAPLUS
DOCUMENT NUMBER: 135:13584
TITLE: "Continuous on-line true titrations by feedback based flow ratiometry: application to potentiometric acid-base titrations"
AUTHOR(S): *Dasgupta, P. K.; Tanaka, H.; Jo, K. D.*
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA
SOURCE: **Analytica Chimica Acta (2001), 435(2), 289-297**
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The methodol. of continuous titrns. by feedback-based flow ratiometry and the principle of compensating errors was applied to potentiometric acid-base titrns. In a typical case, the titrant (a standard base) flow (FB) is varied in response to a controller output voltage, while the total flow (FT, consisting of an acid sample and the titrant flow) is held constant The titrant flow is initially ramped upward linearly. At the instant, the

detector senses the equivalence potential is reached, the controller output (instantaneous value VH) reverses its ramp direction, thus decreasing the titrant flow linearly at the same rate. When the equivalence point is sensed again, the controller voltage (instantaneous value VL) is ramped in reverse once more, going upward. Because of the lag time between a change in the controller output and its outcome being sensed by the detector, the controller voltage corresponding to the actual equivalence point is the average of VH and VL. Continuous sensor-governed operation of the controller thus results in a triangular waveform. The mean d.c. bias of this waveform during any cycle gives the equivalence point controller voltage VE. This principle of compensating errors allows true titrns. in principle, requiring no calibration curves. Even though pH electrode response is slow compared with optical sensors, high throughput (12 s per titration) is attainable with reasonable reproducibility (0.7% RSD). The method was applied to diverse acid-base titrns. REFERENCE COUNT: 13

L3 ANSWER 20 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:597804 CAPLUS
DOCUMENT NUMBER: 133:217078
TITLE: "Continuous on-line true titrations by feedback-based flow ratiometry. The principle of compensating errors"
AUTHOR(S): *Tanaka, Hideji; Dasgupta, Purnendu K.; Huang, Jimin*
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA
SOURCE: **Analytical Chemistry (2000), 72(19), 4713-4720**
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors introduce a new concept for continuous online titrns. based on feedback-controlled flow ratiometry and the principle of compensating errors. The system was thoroughly tested by applying it to acid-base neutralization titrns. with indicator-based end point detection. In a typical case, the total flow (FT, consisting of the sample and the titrant flows) is held constant while the titrant (e.g., a standard base containing an indicator) flow FB varies linearly in response to a controller output voltage. The sample (e.g., an acidic solution to be titrated) flow FA constitutes the makeup and thus also varies (FA = FT - FB). The status of the indicator color in the mixed stream was monitored by an optical detector and used either for governing the controller output or for interpreting the results of the titration Three methods (PID based control, fixed triangular wave control, and feedback-based triangular wave control implemented on a PC) were examined In the last and the most successful approach, the titrant flow is initially ramped upward linearly. At the instant a change in the color is sensed by the detector, the titrant flow rate FH is higher than the true equivalence flow rate FE because of the lag time between the 1st compositional change and its detection. The sensing of the change in color causes the system output to immediately reverse its ramp direction such that the titrant flow now goes down linearly at the same rate. At the instant a change in color, in the opposite direction this time, is again sensed, the titrant flow rate FL is lower than FE by exactly the same amount that FH was higher than FE. This

principle of compensating errors (FE = (FH + FL)/2) allows true titrns. with excellent reproducibility and speed (0.6% relative standard deviation at 3 s/titration and 0.2% relative standard deviation at 10 s/titration) and titrant volume consumption <SYM179>12 <SYM109>L/titration and solves an old conceptual problem in flow based titrns. REFERENCE COUNT: 26

L3 ANSWER 32 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:706472 CAPLUS
DOCUMENT NUMBER: 128:18220
TITLE: "Single standard calibration and data processing in flow injection titration based on concentration gradients"
AUTHOR(S): *Araujo, M. C. U.; Santos, A. V.; Honorato, R. S.; Pasquini, C.*
CORPORATE SOURCE: Departmento de Quimica, CCEN, Universidade Federal da Paraiba, Toao Pessoa, 58051-970, Brazil
SOURCE: **Journal of Automatic Chemistry (1997), 19(5), 157-164**
CODEN: JAUCD6; ISSN: 0142-0453
PUBLISHER: Taylor & Francis
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This paper describes use of gradients of concentration generated in flow injection (FI) systems to perform detns. based on points where the concentration of titrant and analyte are at stoichiometric ratio. Two procedures were developed. In one procedure the titrant is injected in a FI manifold and merges with the sample which is continuously pumped towards the detector. In the other procedure the sample is injected and merged with the titrant which is continuously pumped. Both techniques make use of concentration gradients of the sample or titrant generated in FI manifolds that contain a mixing chamber. This gradient is calibrated employing only one standard solution (usually the titrant) to convert any detector signal, obtained in the elapsed time after injection, to instantaneous concentration values. The flow system is microcomputer controlled and data are treated to locate points where the concentration of titrant and analyte are at the stoichiometric ratio. These points are found in abrupt changes of the signal + concentration curves obtained in the presence of the reaction. The method was evaluated for determination of Fe(II) and acetic acid by spectrophotometric and conductimetric detection, resp. Results show a mean relative standard deviation <1%, an average accuracy of 1% and a high sampling processing capability (40 to 60 samples per h). REFERENCE COUNT: 21

L3 ANSWER 37 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:751150 CAPLUS
DOCUMENT NUMBER: 123:267805
TITLE: Continuous flow titration system for the generation of multivariate spectrophotometric data in the study of acid-base equilibria
AUTHOR(S): Saurina, J.; Hernandez-Cassou, S.; Tauler, R.
CORPORATE SOURCE: Departament de Quimica Analitica, Universitat de Barcelona, Diagonal 647, Barcelona, 08028, Spain
SOURCE: Analytica Chimica Acta (1995), 312(2), 189-98

CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In the present work a continuous flow system to carry out spectrophotometric titrns. is developed. The titrant solution is generated online from mixing two different stock buffer solns. The composition of the titrant agent is sequentially varied along the titration by changing the ratio of flow rates of both buffer channels, and therefore the pH can be modified. One spectrum is recorded at each pH value when the absorbance achieves the steady state. The spectral data have been treated by means of a recently developed self-modeling multivariate curve resolution method (SPFAC procedure). This method has been applied to the study of the acid-base equilibrium of 1,2-naphthoquinone-4-sulfonate (NQS). Four titrns. with concns. of NQS ranging from 1.6+10-4 to 7.3+10-4 M have been performed, and, in every case, 24 spectra at different pH have been registered. Three species are detected in the range of pH studied (6.9-12.3). Their distribution plot with pH and their unit spectrum have been obtained.

L3 ANSWER 46 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:247423 CAPLUS
DOCUMENT NUMBER: 116:247423
TITLE: Simple system for continuous potentiometric titration
AUTHOR(S): Medeiros, Joao A.; De Carvalho, M. Lucia C. P.
CORPORATE SOURCE: Dep. Quim., PUC/RJ, Rio de Janeiro, Brazil
SOURCE: Quimica Nova (1991), 14(4), 282-8
CODEN: QUNODK; ISSN: 0100-4042
DOCUMENT TYPE: Journal
LANGUAGE: Portuguese
AB In order to substitute expensive conventional potentiographs an instrumental system for continuous titrns. was developed, using an analogic potentiometric recorder (x-time) and low cost materials. A gravity feeding flask, calibrated to deliver constant flow, was used as buret. Combined glass-AgCl/Ag electrodes were used for acid-based titrimetry. Differential circuit is avoided by using differential electrodes, protected electrode type, to get derivative curves of potentiometric titrns. in argentiometry, as an example of applications of the proposed system. The electrodes are connected directly to the potentiometric recorder, or through a pH-meter with analogic output. Pushing the key to start the advance of the paper of the recorder starts the titration by opening a valve before a capillary which introduces the titrant in the reaction flask, with simultaneous drawing of the potential-time curve (pH or mV x time, proportional to titrant volume). Neutralization curves of HCl, H2COOH, H2C2O4, and of H3PO4 obtained with the developed system using combined glass electrodes, are presneted, as well as derivative curves of potentiometric titrns. of AgNO3 solns. with NaCl, using differential Ag-electrodes. The proposed system is equivalent to more expensive systems, delivering comparable results. The system may be enhanced, according to available budget. The neutralization curves obtained agree well with calculated ones.

L3 ANSWER 53 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1988:30987 CAPLUS
DOCUMENT NUMBER: 108:30987
TITLE: Method and arrangement for continuous titration with liquid pulses
INVENTOR(S): Robertson, Peter Murday; Suter, Erwin
PATENT ASSIGNEE(S): Zellweger Uster A.-G., Switz.
SOURCE: Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 236792	A2	19870916	EP 1987-102164	19870216
EP 236792	A3	19901010		
R: BE, DE, FR, GB, IT, NL, SE				
CH 670161	A	19890512	CH 1986-994	19860311
US 4873057	A	19891010	US 1987-27001	19870310

PRIORITY APPLN. INFO.: CH 1986-994 19860311

AB The sample and the reagent necessary for the titration are supplied to a titration vessel, whereby the supply of reagent and/or sample results from intermittent liquid pulses. A regulated valve for this purpose is provided for the reagent in the supply line. The opening and closing times of the valve and therewith the frequency and period of the liquid pulse are selected, so that the ratio of the mean sample stream to the mean reagent stream corresponds to the ratio of the sample and the reagent at the equivalence point. In this way, continuous titration is made possible, for which a pump is necessary while a servosystem is not required and therefore has a low energy consumption.

L3 ANSWER 73 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:167192 CAPLUS
DOCUMENT NUMBER: 94:167192
TITLE: "Continuous titration with electrochemical generation"
INVENTOR(S): *Albery, John; Wood, Peter*
PATENT ASSIGNEE(S): Pharmacia Fine Chemicals AB, Swed.
SOURCE: Brit. UK Pat. Appl., 12 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2045943	A	19801105	GB 1980-6228	19800225
GB 2045943	B2	19830309		
SE 7901682	A	19800827	SE 1979-1682	19790226
SE 429379	B	19830829		
SE 429379	C	19831208		
JP 55140144	A2	19801101	JP 1980-22343	19800226
US 4312715	A	19820126	US 1980-220285	19801229

PRIORITY APPLN. INFO.: SE 1979-1682 19790226
US 1980-123041 19800220

AB The diffusion-layer titration technique, in which an electroactive species is generated at a 1st electrode and the amount of it that did not react with a test substance is determined at a 2nd electrode, is extended for continuous and instantaneous use by siting the detector electrode downstream of the generator electrode, controlling the generating current (igen) in response to the detecting current (idet) so that their ratio is kept at a predetd. value, and measuring either igen or idet. When the igen/idet ratio is kept constant the value of either is a function of the concentration of the test substance. The ratio igen/idet is selected so that the straight line corresponding to it in the titration diagram intersects the titration curves at or close to the point where the curves become linear. Typically, the electrochem. generated species are halogens and hypohalite anions. Current-concentration diagrams are given for As(III), peptides, amino acids, and proteins with Br. The differences between diagrams obtained in acid and alkaline media were used to identify proteins. An elec. circuit diagram and rotating-ring disk, tubular double, and double wall-jet electrodes for carrying out the anal. are described.

L3 ANSWER 74 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1980:208309 CAPLUS
DOCUMENT NUMBER: 92:208309
TITLE: Controlled dynamic titrator
AUTHOR(S): Abicht, S. M.
CORPORATE SOURCE: Fachricht. Org. Instrum. Anal., Univ. Saarlandes, Saarbruecken, D-6600, Fed. Rep. Ger.
SOURCE: Analytica Chimica Acta (1980), 114, 247-56
CODEN: ACACAM; ISSN: 0003-2670
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The controlled dynamic titrator operates with constant titrant flow and time-proportional sample flow; sample and titrant are mixed in a microcell and the equivalence point is reached when the products of the normalities and flow rates of the titrant and the sample are equal. Titration times are measured and printed out. The concentration of the sample is inversely proportional to the titration time. The automatic titrator is discontinuous and suitable for on-line and off-line use. The cycle time of the motor-driven programmer is 2 min. Flow-through detectors for potentiometric, photometric, or voltammetric indication can be used for a selection of acid-base and redox titrns. With this equipment, titration of large series of liquid samples with similar contents is simple.

L3 ANSWER 75 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1980:157243 CAPLUS
DOCUMENT NUMBER: 92:157243
TITLE: A method of and apparatus for determining an unknown endpoint of a chemical sample during potentiometric titration
INVENTOR(S): Gibboney, Dennis Alan; Schneider, John Taylor; Premus, Jerry Christian
PATENT ASSIGNEE(S): Fisher Scientific Co., USA

SOURCE: Brit. UK Pat. Appl., 10 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2020811	A	19791121	GB 1978-43741	19781108
GB 2020811	B2	19820902		
US 4180440	A	19791225	US 1978-905572	19780515
FR 2426260	A1	19791214	FR 1978-26618	19780915
FR 2426260	B3	19810814		
JP 54150193	A2	19791126	JP 1978-145444	19781127
DE 2853377	A1	19791122	DE 1978-2853377	19781211

PRIORITY APPLN. INFO.: US 1978-905572 19780515

AB The end point of a potentiometric titration is determined by continuously monitoring the volume of titrant delivered and the potential of the sample during the titration to establish a constant rate of change in the potential, and maintaining the established rate by adjusting the titrant delivery rate. Elec. signals which are proportional to the rate of change in the potential and to the titrant delivery rate, resp., are generated, the end point being the quotient of the 2 signals.

L3 ANSWER 104 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1971:471103 CAPLUS
DOCUMENT NUMBER: 75:71103
TITLE: Apparatus for continuously titrating chemical compounds in solution
INVENTOR(S): Childress, Bobby B.; Grubbs, William J.
PATENT ASSIGNEE(S): Zellweger A.-G.
SOURCE: Ger. Offen., 17 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2031336		19710513	CH 515504	CH FR 2071633 FR

PRIORITY APPLN. INFO.: CH 19691103

AB A sample stream from a bath whose pH is to be kept constant is conveyed by a proportioning pump of constant output to a cell where it is mixed with a stream of a titrant transported by a proportioning pump driven by a variable speed motor. The mixture is passed to a measuring cell where an electrode delivers an elec. signal to a differential amplifier which dets. the magnitude of the deviation of the measured value from the desired value. The speed of the variable speed motor is controlled in accordance to this magnitude. A voltmeter calibrated in concentration units can be connected to the adjusting (reference) voltage from the potentiometer controlling the generator which feeds the variable speed motor, or to the outlet voltage of the generator.

L3 ANSWER 105 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1971:71220 CAPLUS
DOCUMENT NUMBER: 74:71220
TITLE: Chemical reactions in liquid junctions. II. New potentiometric titration method
AUTHOR(S): Bonciocat, Nicolae; Chiosa, Laurentiu; Mihailescu, Florica; Olteanu, Maria
CORPORATE SOURCE: Inst. State Cont. Drugs. Pharm. Res., Bucharest, Rom.
SOURCE: Revue Roumaine de Chimie (1970), 15(10), 1513-23
CODEN: RRCHAX; ISSN: 0035-3930
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A potentiometric titration method is described theoretically and demonstrated exptl. which is based on the continuous variation, during the titration, of the liquid-junction potential due to the continuous variation of the liquid-junction double layer structure. Titration curves are given for the titrns. of NaOH with HCl, Na2SO4 with BaCl2, AgNO3 with KCl, and Tris with HCl. The accuracy of the method depends on the solute-titrant concentration ratio.

L3 ANSWER 109 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1969:445403 CAPLUS
DOCUMENT NUMBER: 71:45403
TITLE: Continuous potentiometric titration with constant parameters
AUTHOR(S): Strafelda, Frantisek; Volf, Radko
SOURCE: Sb. Vys. Sk. Chem.-Technol. Praze, Anal. Chem. (1967), (2), 131-41
From: From CZ 1969 (6), Abstr. No.1563
DOCUMENT TYPE: Journal
LANGUAGE: Czech
AB An apparatus, which was used to pump the sample at a constant rate, was constructed for continuous titration with a solution The rate was regulated by a pulse proportional controller with an electromech. integration unit. The construction and operation of the apparatus was described. (NH4)2SO3 and NH4HSO3, i.e. free NH3 and SO32- were determined in solution with the apparatus

L3 ANSWER 114 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1968:56382 CAPLUS
DOCUMENT NUMBER: 68:56382
TITLE: Automatic titrator
INVENTOR(S): Vasil'ev, A. V.; Mulyanov, P. V.; Efremov, N. A.
SOURCE: U.S.S.R. From: Izobret., Prom. Obraztsy, Tovarnye Znaki 1967, 44(5), 122.
CODEN: URXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Russian
PATENT NO. KIND DATE APPLICATION NO. DATE
--- --- --- --- ---
SU 192478 19670206 SU 19620412

AB The titrator consists of a measuring cell, measuring device for adding the titrating agent, a system for adding the reagents and the solution being titrated, a 2nd apparatus and system for the automatic control of the reproducibility of the measuring device for adding the titrating agent which includes an indicator electrode, voltmeter, and an auxiliary apparatus To carry out a continuous titration, the measuring cell is made up of 2 chambers, one of which is equipped with calomel and indicator electrodes and it is connected with the measuring device for the titrating agent. The 2nd chamber is connected with the system for adding the reagents and the solution being titrated. To retain a proportionality between the measured out sample of the titrating agent and the reagents, the measuring device for the titrant and the system for adding the reagents and the solution to be titrated are made in the form of an assembly of measuring hoppersmicropumps which have a common drive gear.

L3 ANSWER 116 OF 166 CAPLUS COPYRIGHT 2004 ACS on STNACCESSION NUMBER: 1967:413060 CAPLUS
DOCUMENT NUMBER: 67:13060
TITLE: Continuous coulometric titrator
INVENTOR(S): Strickler, Allen
PATENT ASSIGNEE(S): Beckman Instruments, Inc.
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3308041		19670307	US 19611205	

AB Titrant is generated coulometrically by passing a current through an electrolyte in a cell remote from the sample stream. The titrant and sample are mixed and sensing electrodes measure the mixture as a function of the ratio of titrant to sample. The generating and sensing electrodes output through a controller varies the current in the generator and thereby the titrant output. A current meter gives the rate of generation of titrant and thus strength of titer of sample stream.

L3 ANSWER 120 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1966:477010 CAPLUS
DOCUMENT NUMBER: 65:77010
ORIGINAL REFERENCE NO.: 65:14404b-c
TITLE: Analysis of the working mechanism of a continuous process titrator
AUTHOR(S): Niki, Eiji; Sawatari, Atsushi
CORPORATE SOURCE: Univ. Tokyo
SOURCE: Bunseki Kagaku (1966), 15(7), 677-83
CODEN: BNSKAK; ISSN: 0525-1931
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB The stability of a continuous titrator with proportional plus integral actions was analyzed by automatic control theory. The system was more stable at larger integral times, smaller controller sensitivity, smaller time consts. of detector and of titration cell

parts, and smaller dead time of the system. The response showed no fluctuation in the neighborhood of the theoretical region, but showed some fluctuation in the other regions.

L3 ANSWER 149 OF 166 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1958:48102 CAPLUS
DOCUMENT NUMBER: 52:48102
ORIGINAL REFERENCE NO.: 52:8630e-f
TITLE: Continuous automatic titrator with proportional plus integral servo-system
AUTHOR(S): Makishima, Shoji; Yoneda, Yukio; Morikawa, Hisashi; Miyao, Kenji
CORPORATE SOURCE: Univ. Tokyo
SOURCE: Kogyo Kagaku Zasshi (1956), 59, 878-83
CODEN: KGKZA7; ISSN: 0368-5462
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB An apparatus to record the end point of a titration is described, which employs as an adjusting device for the titrating liquid a piston cylinder or gear pump, a titration vessel with electrodes, transducer-amplifier, recorder, etc. The principle and working mechanism are discussed theoretically. The titration of Fe++ solution with KMnO4 solution indicated an error of ±1.1%.

L4 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:439924 CAPLUS
DOCUMENT NUMBER: 119:39924
TITLE: Triangle programmed coulometric flow titration with potentiometric and optical detection
AUTHOR(S): Feher, Zsofia; Nagy, Geza; Slezsak, Istvan; Toth, Klara; Pungor, Erno
CORPORATE SOURCE: Inst. Gen. Anal. Chem., Techn. Univ., Budapest, H-1521, Hung.
SOURCE: Analytica Chimica Acta (1993), 273(1-2), 521-30
CODEN: ACACAM; ISSN: 0003-2670
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The application of a flow-through titration technique, the so-called triangle programmed coulometric titration, is presented for acid-base titrns. using potentiometric and photometric detection. A flow-through capillary glass electrode-SCE pair was employed for potentiometric detection, and an indicator mixture and a light-emitting diode-phototransistor system was used for photometric detection. In photometric detection the precision of the end-point location was enhanced by the addition of a suitable mixture of Methyl red and m-Cresol Purple acid-base color indicators. The suitability of the technique was demonstrated for different acid-base titrns. As an example, the determination of the drug content of a nicotinic acid-containing exptl. pharmaceutical preparation is described.

L4 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1984:184876 CAPLUS
DOCUMENT NUMBER: 100:184876

TITLE: "Automation of triangle programmed potentiometric titrations"
AUTHOR(S): *Gratzl, M.; Feher, Z.; Toth, K.; Pungor, E.*
CORPORATE SOURCE: Inst. Gen. Anal. Chem., Tech. Univ. Budapest, Budapest, Hung.
SOURCE: **Analytical Chemistry Symposia Series (1984), 18(Mod. Trends Anal. Chem., Pt. A), 297-305**
CODEN: ACSSDR; ISSN: 0167-6350
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The triangle programmed flow-through potentiometric titrns. yield 2, nearly sym. ordinary titration curves the inflection points of which correspond in ideal cases to the chemical equivalent points. The automation of the whole titration process involves the automation of the evaluation. The evaluation method must be able to find the true inflection points and to filter out the secondary inflection points caused by noises of different kinds. An evaluation method is reported which finds the true inflection points and also carries out the automatic calibration and recalibration of the measuring system. The computer program takes into account the actual and every former calibration data, with exponentially decreasing wts. In this way large series of analyses can be done in a completely automatic way. As examples, acid-base titrns. are presented.

L4 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1978:572922 CAPLUS
DOCUMENT NUMBER: 89:172922
TITLE: A novel titration technique for the analysis of streamed samples - the triangle-programmed titration technique. Part 3. Titrations with electricallygenerated bromine
AUTHOR(S): Nagy, G.; Feher, Z.; Toth, K.; Pungor, E.
CORPORATE SOURCE: Inst. Gen. Anal. Chem., Tech. Univ., Budapest, Hung.
SOURCE: Analytica Chimica Acta (1978), 100, 181-91
CODEN: ACACAM; ISSN: 0003-2670
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The triangle-programmed titration technique brings together the advantages of flow-through techniques and titration methods. Titrns. with Br prepared by current-programmed electrolysis are reported; suitable instrumentation is described for biamperometric end point indication. The electrode processes and the effects of different parameters of the reagent addition program are discussed. The applicability of the method to organic and inorg. substances is described. The technique is applicable to flowing sample solns. of small volume, and the rate of anal. is similar to that achieved with other semi-automated analyzers.

L4 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1978:15453 CAPLUS
DOCUMENT NUMBER: 88:15453
TITLE: A novel titration technique for the analysis of streamed samples - the triangle-programmed titration technique. Part II. Argentimetric titrations

AUTHOR(S): Nagy, G.; Feher, Z.; Toth, K.; Pungor, E.
CORPORATE SOURCE: E. Gy. T. Pharmacochem. Works, Budapest, Hung.
SOURCE: Analytica Chimica Acta (1977), 91(2), 97-106
CODEN: ACACAM; ISSN: 0003-2670
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An apparatus is described for carrying out triangle-programmed titrns. with coulometrically generated Ag(I). Voltammetric and potentiometric detection systems are discussed, but emphasis is placed on potentiometric detection with ion-selective electrodes. The proposed technique and apparatus were used to determine halides and pseudohalides at low concns. in flowing samples. The simultaneous anal. of 2-component mixts. is shown.

L4 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1978:15398 CAPLUS
DOCUMENT NUMBER: 88:15398
TITLE: "A novel titration technique for the analysis of streamed samples - the triangle-programmed titration technique. Part I. General considerations"
AUTHOR(S): *Nagy, G.; Feher, Z.; Toth, K.; Pungor, E.*
CORPORATE SOURCE: E. Gy. T. Pharmacochem. Works, Budapest, Hung.
SOURCE: **Analytica Chimica Acta (1977), 91(2), 87-96**
CODEN: ACACAM; ISSN: 0003-2670
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The principle of a novel continuous titration technique with triangle-programmed reagent addition is described. The titration reagent is increased beyond the equivalence point and then decreased back through the equivalence point to provide the recording of 2 equivalence points per determination The high precision and reliability of titration techniques are combined with the convenience and fast sample handling of mechanized analyzers of the flow-through type. The theor. titration curves are discussed for detectors with logarithmic and linear signal conversion characteristics.